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L2: Entry 1 of 2

File: JPAB

Aug 6, 1990

PUB-NO: JP402197403A

DOCUMENT-IDENTIFIER: JP 02197403 A

TITLE: TIRE FOR VEHICLE

PUBN-DATE: August 6, 1990

INVENTOR-INFORMATION:

NAME

KATO, MASARU

ASSIGNEE-INFORMATION:

NAME

SUZUKI MOTOR CO LTD

APPL-NO: JP01015871

APPL-DATE: January 25, 1989

US-CL-CURRENT: 152/555

INT-CL (IPC): B60C 13/00

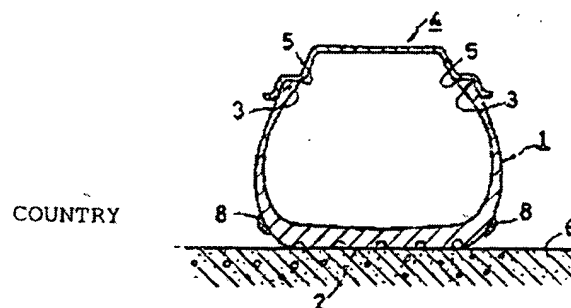
ABSTRACT:

PURPOSE: To decrease excessive deformation of a tire and to prevent falling of the tire by attaching a low-friction member to a part of the surface of a side wall near a tread, thereby forcing a tire to positively slip at the time of suddenly turning a vehicle.

CONSTITUTION: Belt-like low-friction members 8 having a coefficient of friction smaller than those of the surfaces of a side wall and a tread 2 are attached to parts near treads 2 between both right and left treads 2 and beads 3 in a tire 1, that is, on the surface of side walls in peripheral direction of the wide of the tire. When the tire 1 is deformed at the time of suddenly turning a vehicle so that a low-friction member 8 grounds on the road surface, the frictional force of the tire 1 to the road surface 6 is lowered to force the tire to positively slip. Thus, the force F for deforming the tire 1 is weakened, so that the beads 3 of the tire 1 can be kept from falling of a flange 5 of a rim 4.

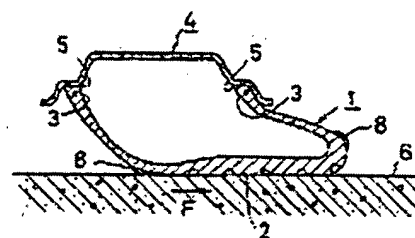
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第 1 図



COUNTRY

第 2 図



BA Ser. No. 10/694,487

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L2: Entry 2 of 2

File: DWPI

Aug 6, 1990

DERWENT-ACC-NO: 1990-279685

DERWENT-WEEK: 199037

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TITLE: Automotive tyre - comprises low friction member on sidewall surface near tread

PATENT-ASSIGNEE:

ASSIGNEE

SUZUKI MOTOR CO LTD

CODE

SUZM

PRIORITY-DATA: 1989JP-0015871 (January 25, 1989), 1989JP-0015811 (January 25, 1989)

Search Selected

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PATENT-FAMILY:

PUB-NO

PUB-DATE

LANGUAGE

PAGES

MAIN-IPC

☐ JP 02197403 A

August 6, 1990

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APPLICATION-DATA:

PUB-NO

APPL-DATE

APPL-NO

DESCRIPTOR

JP 02197403A

January 25, 1989

1989JP-0015811

INT-CL (IPC): B60C 13/00

ABSTRACTED-PUB-NO: JP 02197403A

BASIC-ABSTRACT:

Tyre comprises a low-friction member on a sidewall surface near to a tread.

Specifically to a surface between a tread and a bead on the right and left sides of a tyre, (sidewall), near to the tread, a band low-friction member which is smaller in friction coefficient than the surface of the sidewall or the tread is fixed along the side periphery of the tyre.

ADVANTAGE: By forming wear on a grounded low-friction member basis during start check-up, excess transformation of the tyre due to low pressure, overload or etc. is visibly identified.

CHOSEN-DRAWING: Dwg.0/2

TITLE-TERMS: AUTOMOTIVE TYRE COMPRISE LOW FRICTION MEMBER SIDEWALL SURFACE TREAD

DERWENT-CLASS: A95 Q11

CPI-CODES: A12-T01B;

POLYMER-MULTIPUNCH-CODES-AND-KEY-SERIALS:

Key Serials: 0009 0231 2658 3258 2826 3300

Multipunch Codes: 014 032 04- 41& 50& 57& 597 599 651 672

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1990-120796

Non-CPI Secondary Accession Numbers: N1990-215781

Previous Doc

Next Doc

Go to Doc#

特開平2-197403 (3)

の増加によるタイヤ側壁の増加や、旋回時におけるタイヤ変形では、トレッド2及びトレッド2とサイドウォールとの境いゆるショルダー部のみを接地しており、低摩擦部材8は接地しない。

タイヤ1が、例えば、空気圧不足、荷重超過、あるいは、それらの状況が重なった場合等、タイヤ1が変形しやすい状態で無数の旋回を行ったとき、タイヤ1は、遠心力及びトレッド2と路面6の摩擦力により生ずる力Fにより第2図に示されるように変形する。ここで、力Fの大きさは、タイヤ1の接地面と路面6との摩擦力の大きさに比例する。

そこで上記変形が大きくなって低摩擦部材8が路面6に接地すると、タイヤ1の接地面と路面6の摩擦力は低下し、タイヤ1は横すべりを発生する。このようにタイヤ1の接地面と路面6との摩擦力が低下することにより、タイヤ1を変形させる力Fも低下し、タイヤ1の変形はこれ以上進行しなくなり、リム4のフランジ5

からタイヤ1のビード3は脱落しない。

(発明の効果)

以上詳述した通り本発明によれば、タイヤのサイドウォール側面のトレッドに近接した部位に、該タイヤの側面周方向に沿って帯状の低摩擦部材を設けてタイヤ変形によって低摩擦部材が接地したときの力Fを小さくしたので、タイヤの過度の変形を防止することができる。

したがって、もし、規定タイヤ空気圧不足等で急旋回進行してもタイヤの脱落は、防止される。

また、始動点検時に低摩擦部材の接地による摩擦状態を見ることによって、タイヤの空気圧不足、荷重超過等によるタイヤの過度の変形を視覚で確認することができる。

さらに、低摩擦部材の接地による車両の横すべりで、走行中のタイヤの異常変形を体感できる、タイヤ空気圧不足、荷重超過等を知ることができる。

また、低摩擦部材の色をタイヤと別色とする

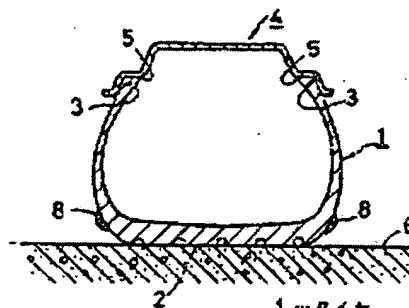
ことにより、見栄えがよくなり意匠上すぐれた効果を有する。

4. 図面の簡単な説明

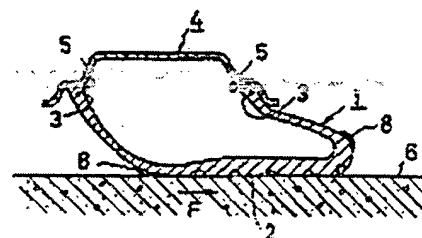
第1図は本発明の一実施例の縦断面図、第2図は第1図の実施例において、タイヤが変形した状態を示す縦断面図、第3図は従来のタイヤとリムの縦断面図、第4図は第3図のタイヤが変形した状態を示す縦断面図、第5図は従来のタイヤ脱着防止山を設けたリムにタイヤを装着した状態を示す縦断面図である。

- 1 ... タイヤ
- 4 ... リム
- 8 ... 低摩擦部材

第1図



第2図



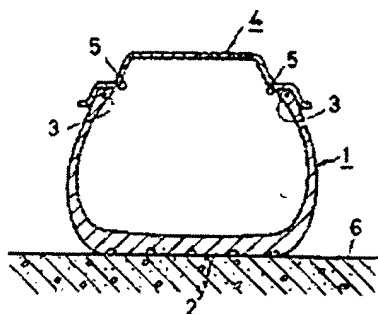
特許出願人 鈴木自動車工業株式会社

代理人 弁理士 野 儀 史

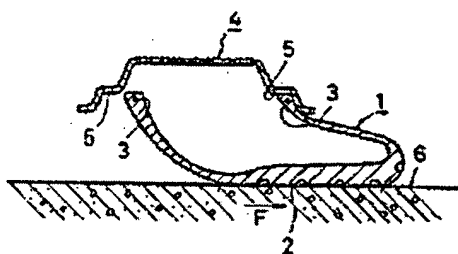
(ほか2名)

特開平2-197403 (4)

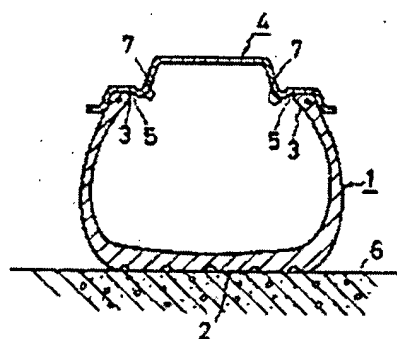
第3圖



第4圖



第5圖



(19) Japanese Patent Office (JP)

(12) Kokai Unexamined Patent Application Bulletin (A)

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	Number of Claims	1
	Number of Pages	4
	Examination Request	Not yet made

(51)	Int. Cl. ⁵	Identification Code	Internal File No.
	B60C 13/00	Z	7006-3D

(54)	Title of the Invention:	Vehicle Tire
(21)	Application No.:	1-T5871
(22)	Application Date:	January 25, 1989
(72)	Inventor:	KATOH, Masaru 57-1, Harajima-cho, Hamamatsu-shi, Shizuoka-ken
(71)	Applicant:	Suzuki Motor Corporation 300 Takatsuka, Kamimura, Hamana-gun, Shizuoka-ken
(74)	Agent:	Patent Attorney, UTENA, Yumi (and two other people)

SPECIFICATION

1. Title of the Invention

Vehicle Tire

2. Claims

(1) A vehicle tire characterized by comprising a low-friction member in a region adjacent to a tread on a sidewall surface.

3. Detailed Description of the Invention

Field of Industrial Application

The present invention relates to vehicle tires that do not separate from the rim even if the tire is deformed as a result of insufficient air pressure or the like.

Prior Art

Vehicle tires for automobiles or the like are not only subject to tire separation as a result of bursting, but tires sometimes separate from the rim of the wheel as the result of excessive deformation of the tire.

For example, with a vehicle tire 1 for automobiles or the like as shown in FIG. 3, if the automobile makes a sudden turn, the tire 1 is excessively deformed.

The reason for this deformation of the tire 1 is as follows. That is to say, the centrifugal force resulting from the sudden turning of the automobile is received by way of frictional force between a tread 2 of the tire 1 and a road surface 6, and generates force and moment on

the tire 1. Principally due to a component force, included in this force and moment, in a direction at right angles to the direction of forward motion of the automobile, in the plane that includes the road surface 6, a force F acts on the tire 1, as shown in FIG. 4, and causes deformation. In the figure, the left-hand side, as shown on paper, is the outer side of the turn. The force F results from the frictional force between the tire 1 and the road surface 6; if the force F is large, the deformation is great; and if a region of the sidewall of the tire 1, which is adjacent to the tread 2, contacts the road surface 6, further advancing the deformation, a bead 3 of the tire 1 may separate from a flange 5 of a rim 4.

If the air pressure in the tire is below the rated pressure, the tire readily deforms, and the tire separation occurs more readily.

If the tire separates, it becomes impossible to steer or drive, and the tire and the wheel

are damaged. Furthermore, in the case of tubeless tires, the air escapes.

Conventionally, in order to prevent such tire separation, a tire separation prevention ridge 7 was provided around the flange 5 of the rim 4, as shown in FIG. 5.

In addition, in terms of technology for reducing the damage to the tire, JP-63-093606-A discloses a sidewall shape that minimizes the rate of spread of cuts and scratches occurring in the sidewall.

Problems to Be Solved by the Invention

In the example of the prior art described above, the [wheel] shown in FIG. 5 is provided with a tire separation prevention ridge 7, which provides resistance, such that the bead 3 can less easily come off the flange 5, so as to reduce the likelihood of the tire 1 separating from the rim 4; but the following problems are present. That is to say, while this is suitable when the deformation of the tire 1 is slight, if that deformation is large, a sufficient [separation prevention] effect cannot be achieved. Specifically, there is a problem in that, if the air pressure in the tire 1 is below the rated pressure, the tire 1 is readily deformed, so it cannot be expected that the [separation prevention] effect will be great.

Furthermore, the [technology] disclosed in JP-63-093606-A prevents damage to tires resulting from the formation of cuts and scratches in the sidewall, which are attributable to tire deformation. But this is not suitable for preventing tire separation, and therefore it seems that similar problems are present.

The present invention is a reflection of that described above, thus an object thereof is to provide a tire wherein tire separation is prevented by causing the tire to slip, so as to lessen the force F, during sudden turns of the automobile or the like, and thereby reduce excessive deformation of the tire.

Means for Solving the Problems

In order to solve the aforementioned problems, the present invention is characterized by affixing a band-shaped, low-friction member 8 or forming this integrally with the material of the tire 1, at a position adjacent to the tread 2 on the surface of the sidewall.

Operation

By virtue of such a constitution, in such cases as when the automobile or the like turns suddenly or the like, if the tire 1 is deformed by the force F from the road surface 6 and it is greatly deformed, a portion of the sidewall of the tire 1 and the low-friction member 8 contact the road surface 6.

Then, as a result of the contact with the low-friction member 8, the frictional force between the tire 1 and the road surface 6 is reduced, and the tire 1 slips sideways.

At this time, because the frictional force between the tire 1 and the road surface 6 is reduced, the force F, which is generated by this frictional force, and which deforms the tire 1, is reduced, so that deformation of the tire 1 doesn't progress further.

Embodiments

Hereinafter one embodiment of the present invention is described in detail.

In FIG. 1, [reference numeral] 1 is a vehicle tire for an automobile or the like; 2 is a tread on the tire 1; and 3 is a bead. [Reference numeral] 4 is a rim of a wheel on which the tire 1 is mounted; and 5 is a flange on the rim 4 for mounting the tire 1.

On the surfaces on both the right side and the left side of the tire 1, between the tread 2 and the bead 3 (hereinafter, referred to as the sidewalls), band-shaped low-friction member 8, having frictional coefficients lower than that of the surfaces of both the sidewalls and the tread 2, are affixed in the lateral circumferential direction in regions adjacent to the tread 2. In terms of all the material characteristics of the low-friction member 8, this is an elastic material which does not degrade the cushioning of the sidewall of the tire 1. Instead of affixing the low-friction member 8, this may be formed integrally with the material of the tire 1 when the tire 1 is formed. The region in which the low-friction member 8 is affixed, or integrally formed, is a regions such that [the low-friction member 8] does not contact the road surface 6 under standard driving conditions, but if the air pressure in the tire is insufficient, the load is excessive, or unduly sudden turns are made on a high-friction road surface, or if these conditions are combined or the like, so the tire deformation is produced under conditions which facilitate deformation of tire 1, [the low-friction member 8] will contact the road surface 6 at the initial deformation stage.

Next, the operation of the embodiment having the constitution described above is described.

Under standard driving conditions, with the tire deformation that occurs when the tire

load is increased due to increasing the carrying load or the number of passengers, or when a sudden turn is made, only the tread 2 and the border between the sidewall and the tread 2, which is known as the shoulder, contact the ground, so that the low-friction member 8 does not contact the ground.

In cases such as, for example, those wherein the tire 1 has insufficient air pressure, or the load is excessive, or when these conditions are combined, if an unduly sudden turn is made under conditions that facilitate deformation of the tire 1, the tire 1 deforms in the manner shown in FIG. 2, as a result of the force F which is generated by the centrifugal force and frictional force between the tread 2 and the road surface 6. At this point, the magnitude of the force F is proportional to the magnitude of the frictional force between the surface of the tire 1, which is in contact with the ground, and the road surface 6.

Here, if this deformation increases so that the low-friction member 8 contacts the road surface 6, the frictional force between the surface of the tire 1, which is in contact with the ground, and the road surface 6 decreases, so that the tire 1 slips sideways. Thus, by reducing the frictional force between the surface of the tire 1, which is in contact with the ground, and the road surface 6, the force F that deforms the tire 1 is decreased, so that deformation of the tire 1 does not progress further, and the bead 3 of the tire 1 does not separate from the flange 5 of the rim 4.

Effects of the Invention

By virtue of the present invention as described in detail above, a band-shaped, low-friction member is provided along the lateral circumferential direction of the tire in region that is adjacent to the tread on the surface of the sidewall of the tire; and when the low-friction member contacts the ground as a result of deformation of the tire, the force F is reduced, allowing excessive deformation of the tire to be prevented.

Accordingly, tire separation is prevented, even in such cases as when sudden turns are made when the air pressure in the tire is insufficient for the rating.

Furthermore, when making inspections when work begins, it is possible to visually confirm excessive deformation of the tire due to insufficient air pressure in the tire or excessive loads or the like, by observing the extent to which the low-friction member is abraded as a result of contact with the ground.

Furthermore, it is possible [for the driver] to

feel abnormal deformation of the tire while driving by way of the sideways slip of the vehicle that results from the low-friction member contacting the ground, whereby [the driver] is made aware that the air pressure in the tire is insufficient, the load is excessive, or the like.

Making the color of the low-friction member different than the color of the tire has the effect of improving the appearance and enhancing the design.

4. Brief Description of the Drawings

FIG. 1 is a lengthwise sectional view of one embodiment of the present invention; FIG. 2 is a lengthwise sectional view showing a situation in which tire in the embodiment shown in FIG. 1 is deformed; FIG. 3 is a lengthwise sectional view of a conventional tire and a rim; FIG. 4 is a lengthwise sectional view showing a situation in which the tire shown FIG. 3 is deformed; FIG. 5 is a lengthwise sectional view showing a situation in which a tire is mounted on a rim provided with a conventional tire separation prevention ridge.

- 1 tire
- 4 rim
- 8 low-friction member

Applicant: Suzuki Motor Corporation
Agent: Patent Attorney, UTENA, Yumi
[illegible signatory seal]
(and two other people)

FIG. 1

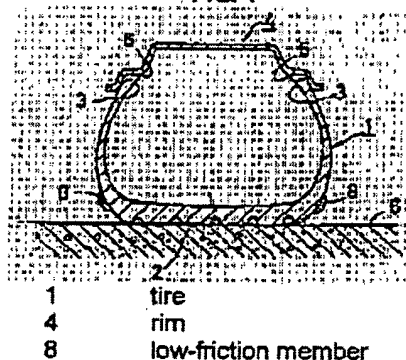


FIG. 2

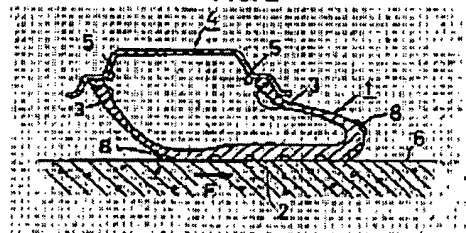


FIG. 3

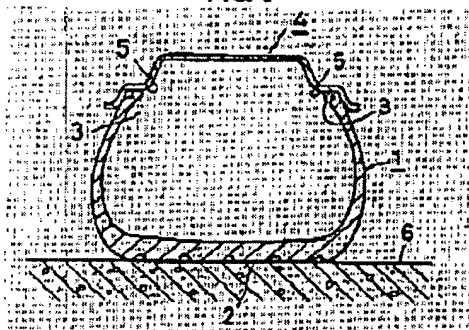


FIG. 4

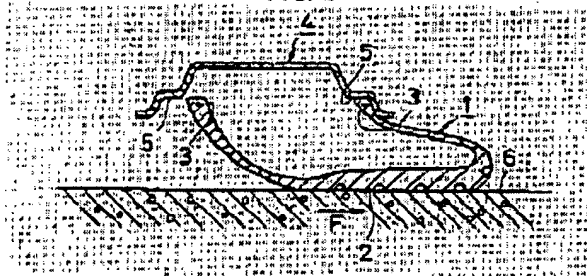


FIG. 5

